Review Form 1.7

Journal Name:	**Asian Research Journal of Mathematics**
Manuscript Number:	**Ms_ARJOM_110044**
Title of the Manuscript:	**The impact of predator-dependent prey refuge on the dynamics of a Leslie-Gower predator-prey model**
Type of the Article	**Original Research Article**

PART 1: Review Comments

	Reviewer's comment	**Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Compulsory REVISION comments 1. **Is the manuscript important for scientific community?** (Please write few sentences on this manuscript) 2. **Is the title of the article suitable?** (If not please suggest an alternative title) 3. **Is the abstract of the article comprehensive?** 4. **Are subsections and structure of the manuscript appropriate?** 5. **Do you think the manuscript is scientifically correct?** 6. **Are the references sufficient and recent? If you have suggestion of additional references, please mention in the review form.** **(Apart from above mentioned 6 points, reviewers are free to provide additional suggestions/comments)**	This paper introduces a novel Leslie-Gower predator-prey model integrating a predator-dependent prey refuge, investigating its dynamics and stability. Initially establishing positivity and boundedness of the system's solution, it proceeds to prove the instability of the origin using the blow-up method and analyzes the existence and local stability of boundary and positive equilibrium points. By constructing a suitable Dulac function, the paper demonstrates the global asymptotic stability of the system's unique positive equilibrium point. Mathematical analysis and simulations reveal intriguing dynamics: when the refuge strength (k = 0), the model mirrors traditional systems; as k tends to infinity, prey densities fall between no refuge and proportional refuge scenarios, yet predator densities surpass those without or with proportional refuge. Moreover, increasing k augments both predator and prey densities, showcasing the significant impact of refuge strength on population dynamics in this newly proposed predator-prey model. The manuscript is well written. I recommend publication of this paper after considering following suggestions: 1. A thorough proofread of the paper should be conducted for grammatical and typing mistakes. 2. Add a conclusion at the end of paper. 3. The authors should add and cite the following references: a. Dynamic analysis of a predator-prey model with Holling type-II functional response and prey refuge by using a NSFD scheme. *Commun. Math. Biol. Neurosci.* 2022 (2022): Article-ID 111. b. Analysis of a Cournot-Bertrand Duoploy Game with Differentiated Products: Stability, Bifurcation and Control. *Asian Research Journal of Mathematics* 18.10 (2022): 115-125.	
Minor REVISION comments 1. **Is language/English quality of the article suitable for scholarly communications?**		
Optional/General comments		

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PART 2:

	Reviewer's comment	**Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Are there ethical issues in this manuscript?	*(If yes, Kindly please write down the ethical issues here in details)*	

Reviewer Details:

Name:	**Rizwan Ahmed**
Department, University & Country	**Air University, Pakistan**